

**Iowa Department of Natural Resources
Environmental Protection Commission**

ITEM

5

DECISION

TOPIC

Notice of Intended Action: Chapter 65-provisions limiting the surface application of manure/open feedlot effluent on frozen or snow-covered ground

A proposed Notice of Intended Action (NOIA) is attached. Also attached is a “Response to Issues Raised at the December EPC Meeting,” which explains the changes in the proposed rule language from that provided as an informational item at the December meeting.

The number and locations of public hearings in the NOIA are merely suggestive, as a means of facilitating the Commission’s decision on that issue.

Wayne Gieselman
Administrator
Environmental Services Division

December 19, 2008

Manure on Frozen and Snow-Covered Ground
Response to Issues Raised at the December EPC Meeting
December 19, 2008

Two important issues were raised at the December EPC meeting regarding the draft rules.

1. Roofed deep bedded cattle operations are commonly classified as confinements, which means that the proposed rules apply to them when they exceed 500 animal units. In contrast, most open feedlots would not have to abide by the proposed rules unless they exceed 1000 animal units. In effect, this provides an incentive for cattle producers to raise their animals in open feedlots which generally pose a greater risk of runoff than roofed operations. Also, the classification of these operations as confinements means that there are separation distance requirements and more stringent restrictions on manure control. According to some producers, these operations do not have space available under the roof for more than 2 weeks of manure production. They have requested an exemption from the February 15th to April 15st prohibition on manure application when the ground is frozen or snow-covered.

Response: The Department recognizes that this type of operation poses less risk to water quality than un-roofed open feedlots and commends producers for choosing to raise animals in this manner. Based on the available research, we still believe there is an increased risk of loss of nutrients and bacteria from any type of solid manure if it is applied to frozen or snow-covered ground, especially in late winter.

It should be noted that the date restriction (February 15th to April 15th) ONLY applies to frozen or snow-covered conditions. The need to have enough storage capacity for 60 days is a worst-case scenario. In 2006, for instance, there was a big snowstorm that hit northwest Iowa in mid-March, but by March 27th no snow was left on the ground and by the 29th the ground had thawed completely (see graph below). According to the Iowa Environmental Mesonet, the probability of 4 inch soil temperatures below 32 degrees F in Calmar (far NE Iowa) is 0% after April 10th. Snowfall over 1 inch is possible in Calmar until the end of April. In southern Iowa (Muscatine) the probability of frozen ground is 0% after March 21st and average snowfall does not exceed 1 inch after April 15th.

Deep bedded barns, such as hoop barns and monoslopes, have a variety of management practices that can be used successfully to operate the facility. Most of the manure and bedding is stored in the barn until the cattle are sold and the manure is removed from the building for land application or storage. Some operations do scrape the area by the feed bunks regularly to prevent manure build up in that area. That scraped manure can be moved back to the bedding pack or removed from the building for land application or storage, with the seemingly preferred practice to remove it from the building. An overview of the construction and operation of these barns presented by Shawn Shouse (ISU Extension) via webcast can be viewed at this address: <http://connect.extension.iastate.edu/p54261684/>.

A PIG (Program Implementation Guidance) has been developed and implemented to allow solid manure, including deep bedded manure, from confinement operations to be stockpiled as long as certain practices are followed. Since manure nutrients are more valuable due to the increased cost of commercial fertilizer, all producers should consider constructing a manure storage facility to protect the manure nutrients from weather in order to maximum use of these nutrients for crop production. This includes manure application and incorporation into the soil to minimize nutrient loss due to leaching or volatilization. While the manure storage facility requires an investment in the facility and time to move the manure in and out of the facility at an appropriate time, the investment should be worthwhile to protect the nutrients contained in the stored manure.

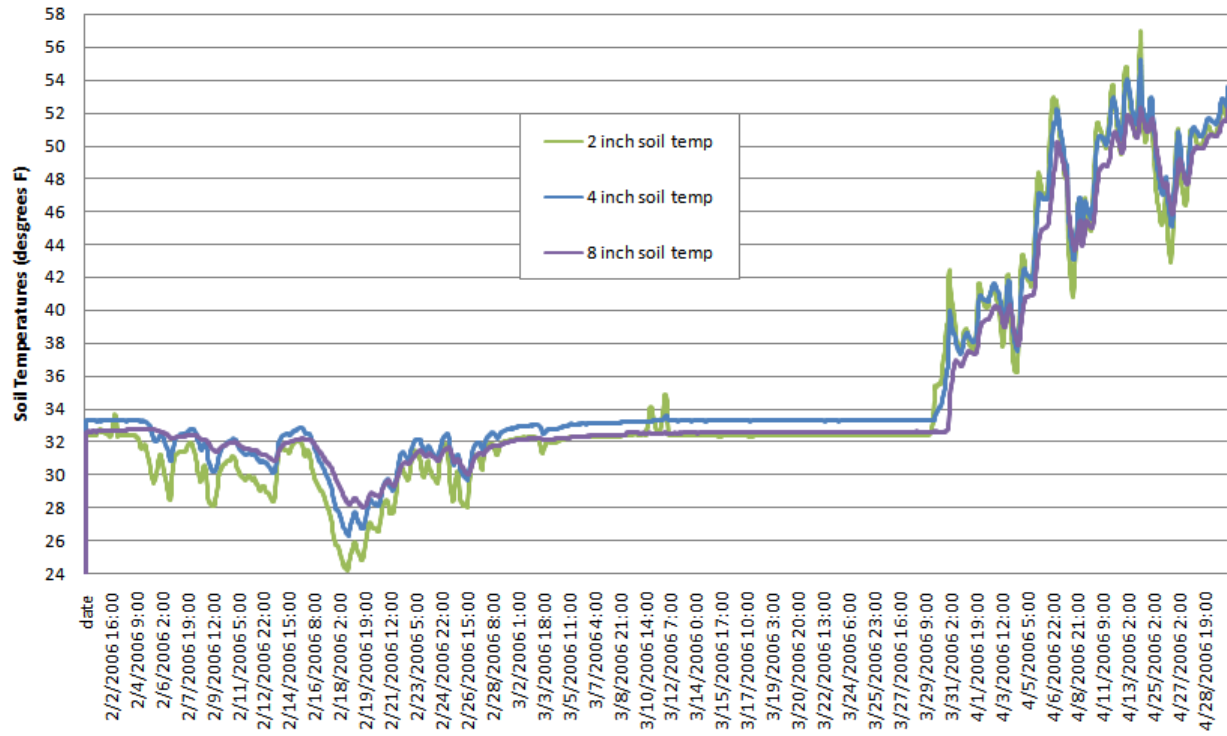
Current Iowa Code provisions regulate all confinements in the same manner regardless of the type of manure (solid or liquid) or the species-dependant nutrient content (cattle, poultry, or swine). Rather than attempt to provide a species-specific exemption to this proposed rule, we anticipate that legislative proposals during the upcoming legislative session may address this problem. To accommodate the concerns expressed by operators of deep bedded operations and to encourage this method of production over open feedlots, we propose to delay the effective date of 65.3(4)“c”(3) until October 1, 2010, for manure originating from deep bedded cattle operations. This will allow sufficient time for manure control issues to be resolved and give producers time to increase their storage capacity if necessary.

We would be more comfortable removing the predictive restrictions 65.3(4)“c”(1) and 65.3(4)“c”(2) than the date restriction in 65.3(4)“c”(3). National Weather Service predictions can change frequently and following or enforcing such a restriction may be very challenging.

2. Scraped snow and ice from open feedlots may contain some solid manure. Scraping the lots is preferable to leaving the snow and ice on the lots both for reasons of animal health and potential runoff. Stockpiling large amounts of snow and ice is not a viable option either. Therefore, some exception should be made for this practice. Dave Petty stated that in a well-managed operation, where manure is scraped from lots prior to snow fall, scraped snow and ice is not likely to contain more than 10% manure solids. Determining percent solids in the field would be very difficult. Therefore, we feel the best option is to exempt scraped snow and ice (including incidental manure) from these rules with the understanding that producers are still responsible for any water quality violations that result from the application of these materials.

2006 Soil Temps - Shagbark Hills, IA Woodbury County

Soil Climate Analysis Network data



ENVIRONMENTAL PROTECTION COMMISSION [567]

Notice of Intended Action

Pursuant to the authority of Iowa Code sections 459.103 and 459A.104, the Environmental Protection Commission hereby gives Notice of Intended Action to amend Chapter 65, "Animal Feeding Operations," Iowa Administrative Code.

For confinement feeding operations or open feedlot operations that are required to submit manure/nutrient management plans or that are subject to enforcement actions for specified violations, the proposed amendments would prohibit the surface application of manure on frozen or snow-covered ground under specified circumstances. Generally, the scope of the prohibition varies depending upon the slope of the land where manure will be applied and whether the manure is solid or liquid. In addition, the proposed amendments would require that a map showing the areas where manure application is prohibited or limited be provided to the person applying manure and that the map be maintained as part of the manure/nutrient management plan.

Any interested person may make written suggestions or comments on the proposed amendments on or before March 3, 2009. Written comments should be directed to Claire Hruby, Iowa Department of Natural Resources, Wallace State Office Building, 502 E. 9th St., Des Moines, Iowa 50319-0034; fax (515)281-8895; email Claire.Hruby@dnr.iowa.gov.

Also, there will be public hearings as follows, at which time persons may present their views either orally or in writing:

_____February ___, 2009	5:00 p.m.	_____ Public Library 1401 Fifth Street _____, Iowa
February ___, 2009	1:00 p.m.	Wallace State Office Building 5 th Floor Conference Room 502 E. 9 th Street Des Moines, Iowa
February ___, 2009	10:00 a.m.	_____ County Courthouse Courthouse Meeting Room 114 E. 6 th Street (HWY 30) _____, Iowa

At the hearings people will be asked to give their names and addresses for the record and to confine their remarks to the subject of the proposed amendments.

Any persons who intend to attend a public hearing and have special requirements such as those related to hearing or mobility impairments should contact the Department of Natural Resources and advise of specific needs.

These amendments are intended to implement Iowa Code sections 459.103, 459.311, 459A.104 and 459A.410.

The following amendments are proposed.

ITEM 1. Amend rule **567—65.1(455B)** by inserting the following new definitions in alphabetical order.

“Active melt event” means snow or ice is actively melting and water is flowing off the field.

“Frozen ground” means ground that is impenetrable due to frozen soil moisture. Ephemeral frost, where the ground is frozen in the first 2 inches or less below the surface is not considered frozen.

“Liquid manure” means manure or process wastewater generated by an animal feeding operation that can be pumped through conventional liquid manure handling or land application equipment. In any other situation, manure that contains less than 20% solids is considered liquid manure.

“Snow-covered ground” means areas with 1 inch or more of snow covering the ground or any area of continuous ice coverage.

“Solid manure” means manure generated by an animal feeding operation that cannot be pumped through conventional liquid manure handling or land application equipment. In any other situation manure that contains 20% solids or greater is considered solid manure.

“Surface application” means any method of applying manure or process wastewater that does not involve injection or incorporation within 24 hours of incorporation.

ITEM 2. Amend rule **567—65.3(455B)** as follows.

567—65.3(455B) Requirements and recommended practices for land application of manure.

65.3(1) *Application rate based on crop nitrogen use.* A confinement feeding operation that is required to submit a manure management plan to the department under rule 65.16(455B) shall not apply manure in excess of the nitrogen use levels necessary to obtain optimum crop yields. Calculations to determine the maximum manure application rate allowed under this subrule shall be performed pursuant to rule 65.17(455B).

65.3(2) *General requirements for application rates and practices.*

a. For confinement feeding operations required to submit a manure management plan to the department under rule 65.16(455B), application rates and practices shall be determined pursuant to rule 65.17(455B).

b. For manure originating from an anaerobic lagoon or aerobic structure, application rates and practices shall be used to minimize groundwater or surface water pollution resulting from application, including pollution caused by runoff or other manure flow resulting from precipitation events. In determining appropriate application rates and practices, the person land-applying the manure shall consider the site conditions at the time of application including anticipated precipitation and other weather factors, field residue and tillage, site topography, the existence and depth of known or suspected tile lines in the application field, and crop and soil conditions, including a good-faith estimate of the available water holding capacity given precipitation events, the predominant soil types in the application field and planned manure application rate.

c. Spray irrigation equipment shall be operated in a manner and with an application rate and timing that does not cause runoff of the manure onto the property adjoining the property where the spray irrigation equipment is being operated.

d. For manure from an earthen waste slurry storage basin, earthen manure storage basin, or formed manure storage structure, restricted spray irrigation equipment shall not be used unless the manure has been diluted with surface water or groundwater to a ratio of at least 15 parts water to 1 part manure.

Emergency use of spray irrigation equipment without dilution shall be allowed to minimize the impact of a release as approved by the department.

65.3(3) *Separation distance requirements for land application of manure.* Land application of manure shall be separated from objects and locations as specified in this subrule.

a. For liquid manure from a confinement feeding operation, the required separation distance from a residence not owned by the titleholder of the land, a business, a church, a school, or a public use area is 750 feet, as specified in Iowa Code section 455B.162. The separation distance for application of manure by spray irrigation equipment shall be measured from the actual wetted perimeter and the closest point of the residence, business, church, school, or public use area.

b. The separation distance specified in paragraph 65.3(3) “a” shall not apply if any of the following apply:

(1) The liquid manure is injected into the soil or incorporated within the soil not later than 24 hours after the original application.

(2) The titleholder of the land benefitting from the separation distance requirement executes a written waiver with the titleholder of the land where the manure is applied.

(3) The liquid manure originates from a small animal feeding operation.

(4) The liquid manure is applied by low-pressure spray irrigation equipment pursuant to paragraph

65.3(3) “d.”

c. Separation distance for spray irrigation from property boundary line. Spray irrigation equipment shall be set up to provide for a minimum distance of 100 feet between the wetted perimeter as specified in the spray irrigation equipment manufacturer’s specifications and the boundary line of the property where the equipment is being operated. The actual wetted

perimeter, as determined by wind speed and direction and other operating conditions, shall not exceed the boundary line of the property where the equipment is being operated. For property which includes a road right-of-way, railroad right-of-way or an access easement, the property boundary line shall be the boundary line of the right-of-way or easement.

d. Distance from structures for low-pressure irrigation systems. Low-pressure irrigation systems shall have a minimum separation distance of 250 feet between the actual wetted perimeter and the closest point of a residence, a business, church, school or public use area.

e. Variances. Variances to paragraph “c” of this subrule may be granted by the department if sufficient and proposed alternative information is provided to substantiate the need and propriety for such action. Variances may be granted on a temporary or permanent basis. The request for a variance shall be in writing and include information regarding:

- (1) The type of manure storage structure from which the manure will be applied by spray irrigation equipment.
- (2) The spray irrigation equipment to be used in the application of manure.
- (3) Other information as the department may request.

f. Agricultural drainage wells. Manure shall not be applied by spray irrigation equipment on land located within an agricultural drainage well area.

g. Designated areas. A person shall not apply manure on land within 200 feet from a designated area, or in the case of a high quality water resource, within 800 feet, unless one of the following applies:

- (1) The manure is land-applied by injection or incorporation on the same date as the manure was land-applied.
- (2) An area of permanent vegetation cover, including filter strips and riparian forest buffers, exists for 50 feet surrounding the designated area other than an unplugged agricultural drainage well or surface intake to an unplugged agricultural drainage well, and the area of permanent vegetation cover is not subject to manure application, and the ground is not frozen or snow-covered. This exemption is not applicable when manure is surface applied to frozen or snow-covered ground. In that event the requirements of 65.3(4) shall be followed.

65.3(4) Surface application on frozen or snow-covered ground.

a. Effective October 1, 2009, the practices set forth in paragraphs “b,” “c,” “d,” “e” and “f” of this subrule are recommended for all confinement feeding operations and are required for each confinement feeding operation under any of the following circumstances:

- (1) the operation is required to submit a manure management plan
- (2) the operation is required to submit a nutrient management plan
- (3) the operation is subject to an enforcement action for a water quality violation caused by runoff from manure application. These operations will be given one year from the date the enforcement action is initiated to begin complying with this subrule.

b. Manure shall not be surface applied to snow-covered or frozen ground within 200 feet and draining to a terrace tile inlet or surface tile inlet unless the inlet is plugged or sleeved

sufficiently to prevent runoff from entering the inlet until snow and ice is melted and the ground is thawed to a depth of at least 8 inches.

c. Manure shall not be surface applied to snow-covered or frozen ground during any of the following:

(1) an active melt event or when there are one or more inches of snow on the ground and maximum temperatures exceed 40 degrees F or are predicted by the National Weather Service to exceed 40 degrees F within 48 hours.

(2) when the probability of rainfall exceeding 0.25 inches is more than 50 percent as predicted by the National Weather Service within 48 hours of the end of the application period

(3) between February 15th and April 15th. This restriction does not apply to the surface application of solid manure originating from deep-bedded beef confinement buildings until October 1, 2010.

d. Liquid manure shall not be surface applied to any of the following:

(1) snow-covered ground.

(2) frozen ground with slopes of 2 percent or greater unless soil conservation practices are in place and P-Index rating is less than 2.

(3) frozen ground with slopes of 5 percent or greater.

e. Solid manure shall not be surface applied to any of the following:

(1) snow-covered ground with slopes of 5 percent or greater.

(2) frozen ground with slopes of 9 percent or greater unless soil conservation practices are in place and P-Index rating is less than 2.

(3) frozen ground with slopes of 14 percent or greater.

f. Restrictions identified for all fields. Prior to application on frozen or snow-covered ground, maps must be provided to the commercial manure service representative or person who will be applying manure that clearly show areas where surface application of manure is limited or prohibited according to 65.3(3)"g," or 65.3(4)"b", "d," or "e." These maps must be maintained as part of the current manure management plan or nutrient management plan as required in 65.17(12).

65.3(45) Recommended practices. Except as required by rule in this chapter, the following practices are recommended:

a. Nitrogen application rates. To minimize the potential for leaching to groundwater or runoff to surface waters, nitrogen application from all sources, including manure, legumes, and commercial fertilizers, should not be in excess of the nitrogen use levels necessary to obtain optimum crop yields for the crop being grown.

b. Phosphorous application rates. To minimize phosphorous movement to surface waters, manure should be applied at rates equivalent to crop uptake when soil tests indicate adequate phosphorous levels. Phosphorous application more than crop removal can be used to obtain maximum crop production when soil tests indicate very low or low phosphorous levels.

~~*e. Manure application on frozen or snow covered cropland.*~~ Manure application on frozen or snow covered cropland should be avoided where possible. If manure is spread on frozen or snow covered cropland, application should be limited to areas on which:

(1) Land slopes are 4 percent or less, or

(2) Adequate erosion control practices exist. ~~Adequate erosion control practices may include such practices as terraces, conservation tillage, cover crops, contour farming or similar practices.~~

~~*d.c. Manure application on cropland subject to flooding.*~~ Manure application on cropland subject to flooding more than once every ten years should be injected during application or incorporated into the soil after application. Manure should not be spread on such areas during frozen or snow-covered conditions.

~~*ed. Manure application on land adjacent to water bodies.*~~ Unless adequate erosion controls exist on the land and manure is injected or incorporated into the soil, manure application should not be done on land areas located within 200 feet of and draining into a stream or surface intake for a tile line or other buried conduit. No manure should be spread on waterways except for the purpose of establishing seedings.

~~*fe. Manure application on steeply sloping cropland.*~~ Manure application on tilled cropland with ~~greater than 10~~ 9 percent slopes or greater should be limited to areas where adequate soil erosion control practices exist. Injection or soil incorporation of manure is recommended where consistent with the established soil erosion control practices.

ITEM 3. Amend paragraph 65.17(3)“e” as follows.

e. The location of manure application, including information regarding the surface application of manure on frozen or snow-covered ground as required in 65.3(4)“f.”

ITEM 4. Amend rule ~~567—65.100(455B, 459, 459A)~~ by inserting the following new definitions in alphabetical order.

“Active melt event” means snow or ice is actively melting and water is flowing off the field.

“Frozen ground” means ground that is impenetrable due to frozen soil moisture. Ephemeral frost, where the ground is frozen in the first 2 inches or less below the surface is not considered frozen.

“Snow-covered ground” means areas with 1 inch or more of snow covering the ground or any area of continuous ice coverage.

“Surface application” means any method of applying manure, process wastewater, settled open feedlot effluent, settleable solids or open feedlot effluent that does not involve injection or incorporation within 24 hours of application.

ITEM 5. Amend paragraph 65.101(6)“b” as follows.

b. Designated areas. A person shall not apply manure on land within 200 feet from a designated area, or in the case of a high quality water resource, within 800 feet, unless one of the following applies:

(1) The manure is land-applied by injection or incorporation on the same date as the manure was land-applied.

(2) An area of permanent vegetation cover, including filter strips and riparian forest buffers, exists for 50 feet surrounding the designated area other than an unplugged agricultural drainage well or surface intake to an unplugged agricultural drainage well, the area of permanent vegetation cover is not subject to manure application. This exemption is not applicable when manure is surface applied to frozen or snow-covered ground. In that event the requirements of 65.101(7) shall be followed.

ITEM 6. Amend rule **567—65.101 (459A)** by inserting the following new subrule and renumbering the remaining subrules accordingly.

65.101(7) Surface application on frozen or snow-covered ground.

a. Effective October 1, 2009, the practices set forth in paragraphs “b,” “c,” “d,” “e” and “f” of this subrule are recommended for all open feedlot operations and are required for each open feedlot operation under any of the following circumstances:

(1) the operation is required to submit a nutrient management plan.

(2) the operation is subject to an enforcement action for a water quality violation caused by runoff from the application of manure, process wastewater, settled open feedlot effluent, settleable solids or open feedlot effluent. These operations will be given one year from the date the enforcement action is initiated to begin complying with this subrule.

The practices set forth in paragraphs “b,” “c,” “d,” “e” and “f” of this subrule do not apply to snow and ice scraped from open feedlots including incidental manure.

b. Manure, process wastewater, settled open feedlot effluent, settleable solids or open feedlot effluent shall not be surface applied to snow-covered or frozen ground within 200 feet and draining to a terrace tile inlet or surface tile inlet unless the inlet is plugged or sleeved sufficiently to prevent runoff from entering the inlet until snow and ice is melted and ground is thawed to a depth of at least 8 inches.

c. Manure, process wastewater, settled open feedlot effluent, settleable solids or open feedlot effluent shall not be surface applied to snow-covered or frozen ground during any of the following:

(1) an active melt event or when there are one or more inches of snow on the ground and maximum temperatures exceed 40 degrees F or are predicted by the National Weather Service to exceed 40 degrees F within 24 hours.

(2) when the probability of rainfall over 0.25 inches is more than 50 percent as predicted by the National Weather Service within 48 hours of the end of the application period.

(3) between February 15th and April 15th.

d. Liquid application. Process wastewater, settled open feedlot effluent or open feedlot effluent that can be pumped through conventional liquid manure handling or land application equipment,

including any such mixture with less than 15% solids, shall not be surface applied to any of the following:

- (1) snow-covered ground.
- (2) frozen ground with slopes of 2 percent or greater unless soil conservation practices are in place and P-Index rating is less than 2.
- (3) frozen ground with slopes of 5 percent or greater.

e. Solid application. Scraped manure or settleable solids shall not be surface applied to any of the following:

- (1) snow-covered ground with slopes of 5 percent or greater.
- (2) frozen ground with slopes of 9 percent or greater unless soil conservation practices are in place and P-Index rating is less than 2.
- (3) frozen ground with slopes of 14 percent or greater.

f. Restrictions identified for all fields. Prior to application on frozen or snow-covered ground, maps must be provided to the commercial manure service representative or person who will be applying manure that clearly show areas where surface application of manure is limited or prohibited according to 65.3(3)"g," or 65.3(4)"b", "d," or "e." These maps must be maintained as part of the current manure management plan or nutrient management plan as required in 65.17(12).

ITEM 7. Amend paragraph 65.101(8)"a" as follows.

a. Stockpiles must be land-applied in accordance with 65.101(6) and 65.101(7) as soon as possible but not later than six months after they are established.

ITEM 8. Amend subparagraph 65.112(8)"b"(2) as follows.

(2) Application methods, the timing of the application, and the location of the land where the application occurs. In addition, information regarding the surface application of manure, process wastewater, settled open feedlot effluent, settleable solids and open feedlot effluent on frozen or snow-covered ground as required in 65.101(7)"f" shall be provided.

Date

Richard A. Leopold, Director